Use of Citizen Science Bird Monitoring Data for Ecological Risk Assessment

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Birds are among the most conspicuous and easily monitored indicators of environmental health and change. Although volunteer avian monitoring ('citizen science') programs provide unique opportunities to gather data at fine and broad geographic scales simultaneously, and over long time periods, there are some concerns about the usefulness of these data for environmental protection. To explore the incorporation of citizen science data into environmental monitoring and risk assessment, NHEERL has engaged in a cooperative agreement with the Cornell Laboratory of Ornithology (CLO). CLO is a leading organization in avian ecology, conservation, and monitoring, and a component of Partners in Flight, an international organization that includes government and non-government partners. CLO also has extensive experience in designing, executing, and publishing peer-reviewed studies based on data gathered by citizen scientists. Through this EPA-CLO cooperative agreement, we are exploring methods to improve accessibility of existing citizen science data sets, limited currently by variable structures and methodologies, access restrictions, disparate nomenclature, and varying spatial attributes. As a first step, CLO is compiling a registry of major avian monitoring (distribution, abundance, and phenology) data sets. This registry includes information on ownership (organization, responsible individual), data content by type (generally and in greatest available detail) and span (species, geographic and temporal regions covered), and instructions on access to both data and metadata files, as available. The registry will serve as a clearinghouse for bird data, and will follow Federal Geographic Data Clearinghouse metadata standards. The second major area of cooperation involves linking avian and environmental data to explore associations between environmental factors and avian population trends. Specifically, NHEERL and CLO are evaluating complementary approaches to predict effects on avian populations of multiple stressors such as habitat fragmentation and atmospherically deposited pollutants, including acid rain and mercury, to improve ecological risk assessments used for environmental protection and conservation.